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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,722	03/29/2001	Martin R. Handforth	120-042	4607
34845 7590 09/24/2007 McGUINNESS & MANARAS LLP 125 NAGOG PARK ACTON, MA 01720			EXAMINER NORRIS, JEREMY C	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 09/24/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/821,722	<b>Applicant(s)</b> HANDFORTH ET AL.	
	<b>Examiner</b> Jeremy C. Norris	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-33 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 and 14-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 12, 13 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 12, 13, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,219,292 (Dickirson) in view of US 6,608,258 B1 (Kwong).

Dickirson discloses, referring primarily to figures 3-5, an interconnection device comprising: first and second outer layers (74, 75), each including substrate material; at least one inner layer (analogous to 42) disposed between said first and second outer layers, said inner layer including at least one conductive signal trace (analogous to 48) disposed on a rigid substrate material proximate to an edge of the interconnection device and being accessible for direct electrical connection with a corresponding exposed signal trace, wherein at least one conductive protrusion is formed on said conductive inner layer trace (col. 4, lines 15-30). Dickirson does not disclose and shielding of the signal trace. Kwong teaches shielding disposed around a signal trace (46), including a first shielding wall (43) on a layer below the trace, a second shielding wall (44) on a layer above the trace, and third and fourth shielding walls on either side of the trace, the first, second, third and fourth shielding walls (48) being connected such that uninterrupted shielding is provided for 360° around the trace [claim 1]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the 360° shielding taught by Kwong in the invention of Dickirson. The motivation for doing so would have been to reduce signal degradation due to crosstalk [claim 1]. Additionally, the modified invention of Dickirson teaches wherein said conductive inner layer trace extends outward from the edge of the interconnection device (best seen in figure 5) [claim 2], wherein at least a portion of said first outer layer (74) is removed to provide access to said conductive inner layer trace (figure 5) [claim 3], wherein said inner layer substrate material is organic (Dickirson col. 3, lines 25-30) [claim 13].

Similarly, Dickirson discloses, an interconnection device comprising: a printed circuit board having first and second outer layers (74 75), each including substrate material; at least one inner layer (analogous to 42) disposed between said first and second outer layers, said inner layer including at least one conductive signal trace (analogous to 48) disposed on substrate material proximate to an edge of the interconnection device and being accessible for direct electrical connection with a corresponding signal trace. Dickirson does not specifically state that the inner layer substrate material is a ceramic. However, the Examiner takes Official notice that ceramic is well known in the art to be employed as substrate material. Therefore, it would have been obvious to the ordinarily skilled artisan at the time of invention to use ceramic as the substrate material for the inner layer. The motivation for doing so would have been to use a rigid material suitable for high temperature environments.

Additionally, Dickirson does not disclose any shielding. Kwong teaches shielding disposed around a signal trace (46), including a first shielding wall (43) on a layer below the trace, a second shielding wall (44) on a layer above the trace, and third and fourth shielding walls (48) on either side of the trace, the first, second, third and fourth shielding walls being connected such that uninterrupted shielding is provided for 360° around the trace. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the 360° shielding taught by Kwong in the invention of Dickirson. The motivation for doing so would have been to reduce signal degradation due to crosstalk [claim 12], wherein said conductive inner layer trace extends outward from the edge of the interconnection device (best seen in figure 5)[claim 29], wherein at

least a portion of said first outer layer (74) is removed to provide access to said conductive inner layer trace (figure 5) [claim 30], wherein at least one conductive protrusion is formed on said conductive inner layer trace (col. 4, lines 20-25) [claim 31].

### ***Response to Arguments***

Applicant's arguments filed 28 June 2007 have been fully considered but they are not persuasive. Applicant alleges "Dickirson fails to teach forming the conductive media into protrusions as recited in claims 1 and 12" (emphasis Applicant's). However, Dickirson specifically states that the conductive media may be solder (col. 4, line 25). It is inherent that any solder placement on the pads of Dickirson would necessarily protrude from the pad. Thus meeting the structural requirement of the claim of "protrusions". Hence, Applicant's traversal of the instant rejection is deemed unsuccessful. Additionally, Applicant provides other arguments drawn to an embodiment of the invention of Dirkirson that uses conductive adhesive (epoxy). However, the rejection is based on the embodiment of Dickirson that uses solder. Thus, these arguments are moot.

Regarding claims 2 and 3, Applicant alleges that no figures or passages were referred to by the Examiner to supply the claimed limitations. However, the Examiner referred to figures 3-5, and in the instant rejection more specifically figure 5, which clearly show the claimed limitations. Hence, Applicant's traversal of the instant rejection is deemed unsuccessful.

***Allowable Subject Matter***

Claims 5, 6, 32, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 5 and 32 state the limitation "wherein said protrusion is malleable". This limitation, in conjunction with the other claimed features, was neither found to be disclosed in, nor suggested by, the prior art. Claims 6 and 32 state the limitation "wherein said protrusion is resilient". This limitation, in conjunction with the other claimed features, was neither found to be disclosed in, nor suggested by, the prior art.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

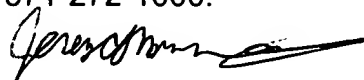
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2841

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Art Unit 2841

JCSN